# IN THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF TEXAS HOUSTON DIVISION

US SYNTHETIC CORPORATION,

Plaintiff,

v.

ELEMENT SIX US CORPORATION; ELEMENT SIX ABRASIVES HOLDINGS, LTD.; ELEMENT SIX GLOBAL INNOVATION CENTRE; ELEMENT SIX GMBH; ELEMENT SIX LIMITED; ELEMENT SIX PRODUCTION (PTY) LIMITED; ELEMENT SIX HARD MATERIALS (WUXI) CO. LTD.; ELEMENT SIX TRADING (SHANGHAI) CO., LTD.; SERVSIX US; SYNERGY MATERIALS TECHNOLOGY LTD.,

Defendants.

CIVIL ACTION NO.

COMPLAINT FOR PATENT INFRINGEMENT

**DEMAND FOR JURY TRIAL** 

# COMPLAINT AND JURY DEMAND

Plaintiff US Synthetic Corporation ("US Synthetic" or "Plaintiff"), by its undersigned counsel, for its Complaint against Element Six US Corporation. ("Element Six Corp."), Element Six Abrasives Holdings Ltd. ("Element Six Holdings"), Element Six Global Innovation Centre (GIC) ("Element Six UK"), Element Six GmbH ("Element Six Germany"), Element Six Limited ("Element Six South Africa"), Element Six Production (Pty) Limited ("Element Six Ireland"), Element Six Hard Materials (Wuxi) Co. Ltd. ("Element Six Wuxi"), Element Six Trading (Shanghai) Co. Limited ("Element Six Shanghai"), ServSix US ("ServSix"), Synergy Materials Technology Ltd. ("Synergy Materials") (collectively, "Defendants"), states and alleges upon information and belief as follows:

#### **NATURE OF THE ACTION**

- 1. This is a civil action for patent infringement of U.S. Patent Nos. 10,508,502 ("the '502 patent"), and 10,507,565 ("the '565 patent") (collectively, "patents-in-suit") arising under the United States Patent Laws, Title 35, United States Code, § 1, *et. seq.*, and in particular under 35 U.S.C. § 271.
- 2. The patents-in-suit are related to polycrystalline diamond ("PCD") and polycrystalline diamond compacts ("PDC" or "PDCs"). A true and accurate copy of the '502 patent is attached hereto as Exhibit A. A true and accurate copy of the '565 patent is attached hereto as Exhibit B.

#### THE PARTIES

- 3. US Synthetic is a corporation organized and existing under the laws of the State of Delaware and maintains a place of business at 1260 South 1600 West, Orem, Utah 84058.
- 4. US Synthetic is a subsidiary of ChampionX Corporation, which is headquartered at 2445 Technology Forest Blvd., Building 4, Suite 1200, The Woodlands, Texas 77381.
- Element Six Corp. is a subsidiary of Element Six Holdings, existing and organized under the laws of New York, having an address of 24900 Pitkin Road, Suite 250, Spring, Texas 77386.
- 6. Element Six Corp. is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including the State of Texas.
- 7. Element Six Holdings is a corporation existing and organized under the laws of the United Kingdom, having a principal place of business at 20 Carlton House Terrace, London, SW1Y 5AN, United Kingdom.

- 8. Element Six Holdings is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 9. Element Six UK is a subsidiary of Element Six Holdings, existing and organized under the laws of the United Kingdom, located on Fermi Ave., Harwell Oxford, Didcot, Oxfordshire, OX11 0QR, United Kingdom.
- 10. Element Six UK is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 11. Element Six Germany is a subsidiary of Element Six Holdings, existing and organized under the laws of Germany, having an address of Städeweg 18, 36151 Burghaun, Germany.
- 12. Element Six Germany is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 13. Element Six South Africa is a subsidiary of Element Six Holdings, existing and organized under the laws of South Africa, having an address of 1 Debid Rd., Nuffield, Springs, 1559, South Africa.
- 14. Element Six South Africa is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 15. Element Six Ireland is a subsidiary of Element Six Holdings, existing and organized under the laws of Ireland, located at Shannon Airport, Shannon, County Clare, Ireland.

- 16. Element Six Ireland is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 17. Element Six Wuxi is a subsidiary of Element Six Holdings, existing and organized under the laws of China, having an address of No. 105-1, Xinjin Rd., Meicun, Wuxi New District, 214112, China.
- 18. Element Six Wuxi is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 19. Element Six Shanghai is a subsidiary of Element Six Holdings, existing and organized under the laws of China, having an address of Unit 3201, Century Link Tower 1, No. 1198 Century Ave., Pudong New District, Shanghai, China.
- 20. Element Six Shanghai is in the business of, *inter alia*, manufacturing, marketing, and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 21. ServSix is a corporation existing and organized under the laws of Utah, having a principal place of business at 554 East 1400 South, Orem, Utah 84097.
- 22. ServSix is in the business of, *inter alia*, marketing and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 23. Synergy Materials is a corporation existing and organized under the laws of Hong Kong, having a principal place of business at Room 301, 3/F Kai Wong Commercial Building, 222 Queen's Road Central, Hong Kong, SAR of China.

- 24. Synergy Materials is in the business of, *inter alia*, marketing and selling PDC products throughout the United States, including in Texas in concert with Element Six Corp.
- 25. Defendants are properly joined under Fed. R. Civ. P. 20(a)(2) because they have acted in concert with each other to develop, manufacture, import, market and/or sell the Accused Products and associated services in this district and throughout the United States, such that the relief requested in this action, arises out of the same transaction, occurrence, or series of transactions and will require resolution of common questions of law and/or fact.

#### **JURISDICTION AND VENUE**

- 26. Plaintiff incorporates by reference the prior paragraphs of this Complaint as if fully set forth herein.
  - 27. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).
- 28. This Court has personal jurisdiction over Defendants by virtue of, *inter alia*, their systematic and continuous contacts with Texas and because Defendants infringe the '502 and '565 patents in Texas and in this judicial district. Among other things Defendants have offered for sale and sold, and continue to offer for sale and sell their infringing 1613 SSI products for importation, promotion, sales and distribution to resellers and end users throughout the United States, including in Texas and in this judicial district.
- 29. Defendants participate in or import into the United States, sell for importation into the United States, and/or sell after importation into the United States, one or more infringing products. ServSix describes itself as the "exclusive authorized distributor for Element Six products in the USA." Exhibit C. Element Six marketing materials for its PDC cutters state that Element Six has "worldwide manufacturing sites" and "global manufacturing facilities." Exhibit D. The PDC marketing materials identify locations for these manufacturing facilities, stating that

"Element Six, part of the De Beers Group of Companies, designs, develops and produces synthetic diamond and other supermaterials, and operates worldwide with primary manufacturing facilities in China, Germany, Ireland, South Africa, the UK and US." Exhibit D. Upon information and belief, the identified manufacturing facilities for PDC correspond to Element Six Shanghai, Element Six Wuxi, Element Six Germany, Element Six Ireland, Element Six South Africa, and Element Six UK. Upon information and belief, these manufacturing entities in conjunction with Element Six Holdings, Element Six US Corp., ServSix and Synergy Materials participate in or import into the United States, sell for importation into the United States, and/or sell after importation into the United States, one or more of the Accused Products.

- 30. Defendants have thus infringed and continue to infringe the patents-in-suit directly, contributorily, and by inducement in the United States, in Texas and in this district. Defendants derive substantial revenue from their sales of infringing products to oil and gas customers in Texas and in this judicial district, and Defendants purposefully avail themselves of the privilege of conducting activities in Texas, thus invoking the benefits and protections of the laws of Texas.
- 31. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(b) and (c) against Defendants Element Six Holdings, Element Six UK, Element Six Germany, Element Six South Africa, Element Six Ireland, Element Six Wuxi, Element Six Shanghai and Synergy Materials, because they are incorporated in foreign states and may be sued in any judicial district in the United States in which it is subject to the court's personal jurisdiction.
- 32. Venue is proper in this judicial district under 28 U.S.C. § 1400(b) against

  Defendant Element Six Corp. because Element Six Corp. has a regular and established business
  in and has committed acts of infringement in Texas and in this district.

33. Venue is proper in this judicial district under 28 U.S.C. § 1400(b) against Defendant ServSix because ServSix has committed acts of infringement and has a regular and established place of business (service location) in Texas and in this district. *See* Exhibit E.

### **FACTS**

34. US Synthetic is headquartered in Orem, Utah, and is a leading designer and supplier of polycrystalline diamond<sup>1</sup> products for use in drill bits, bearings, and other industrial applications. The polycrystalline diamond may be used to make polycrystalline diamond compacts or "PDCs." PDCs can be shaped as cylindrical parts, as shown in the picture below. Drill bit manufacturers purchase and use PDCs as cutters for rotary drill bits, also shown below.



35. The PDCs provide a hard, durable cutting surface for earth-boring applications, including drilling for oil and gas resources. PDCs can also be used in other harsh, high-wear, or high-temperature applications, such as thrust-bearing assemblies, radial-bearing assemblies, wire-drawing dies, artificial joints, machining elements, and heat sinks.

<sup>&</sup>lt;sup>1</sup>  $\underline{\mathbf{P}}$ oly $\underline{\mathbf{c}}$ rystalline  $\underline{\mathbf{d}}$ iamond is often referenced in the industry as "PCD."

- 36. US Synthetic has invested millions of dollars in the United States in plant/equipment and labor to research, develop, and manufacture polycrystalline diamond and PDC products. US Synthetic is well known as a market leader in PDC technologies.
- 37. US Synthetic has protected innovative PDC technologies with the patents at issue in this case. US Synthetic's patent rights include the '502 and '565 Patents. US Synthetic is the assignee and owner of each of the patents-in-suit.
- 38. The '502 Patent is entitled "Polycrystalline Diamond Compact." The '502 Patent issued on December 17, 2019, based on an application (Application No. 16/358,281) filed on March 19, 2019, which is a continuation of Application No. 13/789,099, filed March 7, 2013, now U.S. Patent No. 10,287,822, which is a continuation of 13/623,764, filed on September 20, 2012, now U.S. Patent No. 8,616,306, which is a continuation of Application No. 12/690,998, filed January 21, 2010, now U.S. Patent No. 8,297,382, which is a continuation-in-part of Application No. 12/244,960, filed on October 3, 2008, now U.S. Patent No. 7,866,418. The '502 Patent will expire no sooner than October 3, 2028.
- 39. The '565 Patent is entitled "Polycrystalline Diamond, Polycrystalline Diamond Compacts, Methods of Making Same, and Applications." The '565 Patent issued on December 17, 2019, based on an application (Application No. 15/080,379) filed on March 24, 2016, which is a continuation of Application No. 13/486,578, filed on June 1, 2012, now U.S. Patent No. 9,315,881, which is a continuation-in-part of Application No. 12/858,906, filed on August 18, 2010, now U.S. Patent No. 9,459,236, which is a division of Application No. 12/244,960, filed on October 3, 2008, now U.S. Patent No. 7,866,418. The '565 Patent will expire no sooner than October 3, 2028.

## THE ACCUSED PRODUCTS

- 40. The Accused Products include PDC products designed for use in the oil and gas industry.
- 41. The UR-1 products sold by Defendants is an exemplary Accused Product, and by itself infringes at least the following Asserted Claims of the 502 and 565 patents:

	'502 Patent	'565 Patent
Infringed Claims	1, 2, 4, 8, 10,	1, 2, 4, 6, 14,
	11, 15, 21	15

**Table 1.** List of Claims Infringed by the Exemplary UR-1 PDC Product

42. According to an analysis of sample products and Element Six's own product descriptions, Defendants have infringed and continue to infringe at least the Asserted Claims of each of the Asserted Patents, as set forth in the chart above. Defendants infringe the Asserted Claims of the Asserted Patents literally and/or under the doctrine of equivalents by making and selling products that infringe, by importing those products into the United States to offer them for sale, and/or by selling those products within the United States after importation.

#### FIRST CLAIM FOR RELIEF

# Patent Infringement of the '502 Patent Under 35 U.S.C. § 271

- 43. US Synthetic incorporates by reference every allegation set forth in the foregoing paragraphs of this Complaint as if fully set forth and restated herein.
- 44. Defendants, without the authority or consent of US Synthetic, have been importing, offering to sell and selling, and continuing to offer and sell in the United States Accused Element Six Products that infringe at least claims 1, 2, 4, 8, 10, 11, 15 and 21 of the '502 patent.
- 45. The chart below sets forth exemplary infringement contentions for claim 1 of the '502 patent based at least in part upon testing performed by US Synthetic:

'502 Patent		
Claim 1	Accused Products	
[1] A polycrystalline diamond compact, comprising:	Pictured above is an example of Element Six's UR-1 cutter. The	
[2] a polycrystalline diamond table, at least an unleached portion of the polycrystalline diamond table including:	cutter is a polycrystalline diamond compact.  An exemplary UR-1 cutter includes a polycrystalline diamond table. The polycrystalline diamond table contains at least an unleached region as evidenced by the chart below:  Spectrum 2  At%  C 98.5  C 1.4  W 0.1  O 0.0	
[3] a plurality of diamond grains bonded together via diamond-to-diamond bonding to define interstitial regions, the plurality of diamond grains exhibiting an average grain size of about 50 µm or less; and	The image above shows the presence of at least one metal solvent catalyst, cobalt, in at least an unleached portion of the polycrystalline diamond table of an exemplary UR-1 cutter.	

'502 Patent	
Claim 1	Accused Products
	The image above shows a plurality of diamond grains of an exemplary UR-1 cutter. The EBSD average grain size of the imaged region is 4.66 µm.
[4] a catalyst occupying at least a portion of the interstitial regions;	A catalyst occupies at least a portion of the interstitial regions of an exemplary UR-1 cutter as evidenced by the chart above.
[5] wherein the unleached portion of the polycrystalline diamond table exhibits a coercivity of about 115 Oe to about 250 Oe;	The unleached portion of the polycrystalline diamond table of an exemplary UR-1 cutter exhibits a coercivity of 189.7 Oe.
[6] wherein the unleached portion of the polycrystalline diamond table exhibits a specific permeability less than about 0.10 G·cm3/g·Oe; and	The unleached portion of the polycrystalline diamond table of an exemplary UR-1 cutter exhibits a specific permeability of 0.069 G·cm³/(g·Oe).

'502 Patent		
Claim 1	Accused Products	
[7] a substrate bonded to the polycrystalline diamond table along an interfacial surface, the interfacial surface exhibiting a substantially planar topography;	A substrate bonded to the polycrystalline diamond table along an interfacial surface is present in an exemplary cutter, the interfacial surface exhibiting a substantially planar topography. The ratio of a surface area of an exemplary cutter's planar interfacial surface to a surface area of an exemplary cutter's substantially planar interfacial surface is 0.9377.	
[8] wherein a lateral dimension of the polycrystalline diamond table is about 0.8 cm to about 1.9 cm.	An exemplary cutter exhibits a lateral dimension of 1.59 cm.	

**Table 2.** Exemplary Claim Infringement Chart for Claim 1 of the '502 Patent

by causing direct infringement in the United States. Defendants will have had knowledge of the '502 Patent and the infringing nature of their Accused Products at least as of the date of service of this Complaint. Defendants infringe through contributory infringement by selling or offering for sale to third parties, such as their customers, products that are material parts of the inventions claimed in the '502 Patent, knowing that they were especially made or especially adapted to practice one or more of the claims of the '502 Patent, and that have no substantial noninfringing uses, and knowing they are in fact used to directly infringe one or more of those claims, at least through the allegations in this Complaint. Defendants also infringe the at least one claim of the '502 Patent indirectly through inducement by, *inter alia*, importing, offering to sell and/or selling the Accused Products to third parties, including their customers, with the specific intent that those third parties directly infringe one or more of the claims of the '502 Patent. Defendant

actively encourage or aid such infringement through various activities, including descriptions on their websites and related materials, and know—at least through the allegations in this Complaint—that the third parties' acts they have induced, and continue to induce, constitute infringement.

46. Defendants' infringement of the Asserted Claims of the '502 patent has caused and continues to cause damages and irreparable harm to US Synthetic.

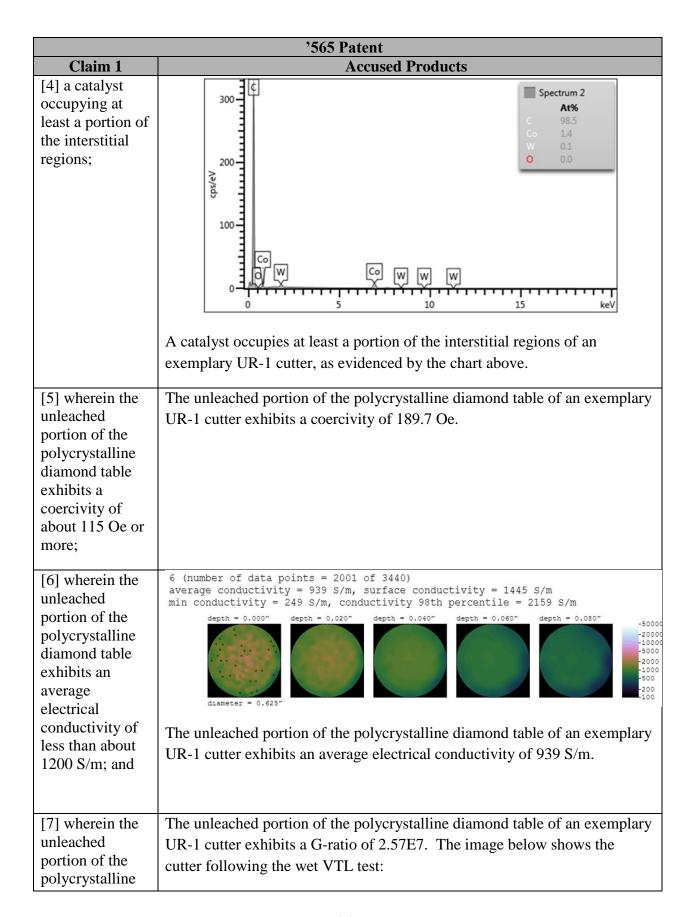
#### **SECOND CLAIM FOR RELIEF**

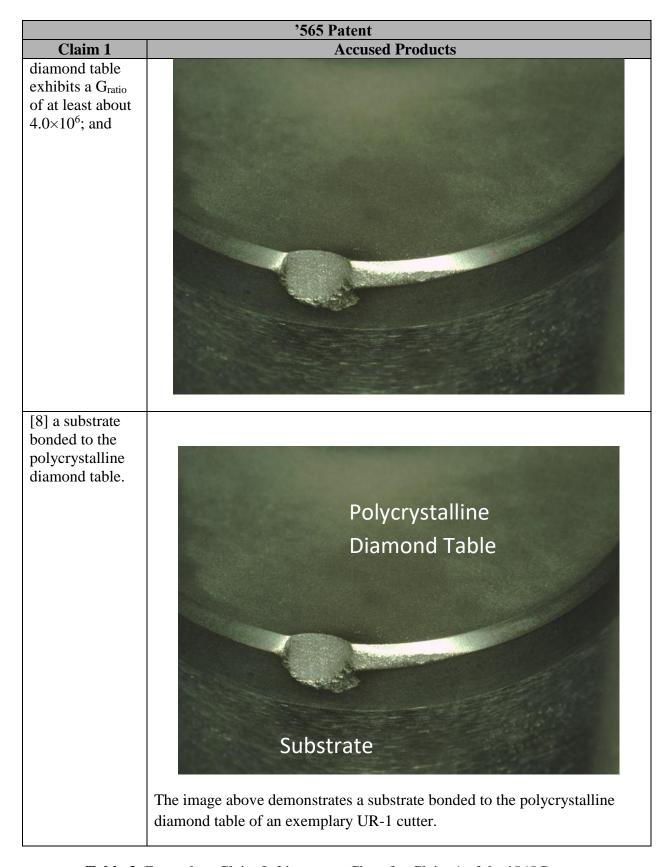
# Patent Infringement of the '565 Patent Under 35 U.S.C. § 271

- 47. US Synthetic incorporates by reference every allegation set forth in the foregoing paragraphs of this Complaint as if fully set forth and restated herein.
- 48. Defendants, without the authority or consent of US Synthetic, have been importing, offering to sell and selling, and continuing to offer and sell, in the United States Accused Element Six Products that infringe at least claims 1, 2, 4, 6, 14 and 15 of the '565 patent.
- 49. The chart below sets forth exemplary infringement contentions for claim 1 of the '565 patent based at least in part upon testing performed by US Synthetic:

'565 Patent		
Claim 1	Accused Products	
[1] A polycrystalline diamond compact, comprising:	Pictured above is an example of Element Six's UR-1 product. The cutter is a polycrystalline diamond compact.	

'565 Patent	
Claim 1	Accused Products
[2] a polycrystalline diamond table, at least an	An exemplary UR-1 cutter includes a polycrystalline diamond table. The polycrystalline diamond table contains at least an unleached region as evidenced by the chart below:
unleached portion of the polycrystalline diamond table including:	The image above shows the presence of at least one metal solvent catalyst, cobalt, in at least an unleached portion of the polycrystalline diamond table of an exemplary UR-1 cutter.
[3] a plurality of diamond grains directly bonded together via diamond-to-diamond bonding to define interstitial regions, the plurality of diamond grains exhibiting an average grain size of about 50 µm or less;	The image above shows a plurality of diamond grains of an exemplary UR-1 cutter. The EBSD average grain size of the imaged region is 4.66 µm.





**Table 3.** Exemplary Claim Infringement Chart for Claim 1 of the '565 Patent

- 50. Defendants infringe the Asserted Claims of the '565 Patent directly and indirectly by causing direct infringement in the United States. Defendants will have had knowledge of the '565 Patent and the infringing nature of its Accused Products at least as of the date of service of this Complaint. Defendants infringe through contributory infringement by selling or offering for sale to third parties, such as their customers, products including at least the diamond compacts identified above, that are material parts of the inventions claimed in the '565 Patent, knowing that they were especially made or especially adapted to practice one or more of the claims of the '565 Patent, and that have no substantial noninfringing uses, and knowing they are in fact used to directly infringe one or more of those claims, at least through the allegations in this Complaint. Defendants also infringe at least one claim of the '565 Patent indirectly through inducement by, inter alia, importing, offering to sell and/or selling the Accused Products to third parties, including their customers, with the specific intent that those third parties directly infringe one or more claims of the '565 Patent. Defendants actively encourage or aid such infringement through various activities, including descriptions on their websites and related materials, and know—at least through the allegations in this Complaint—that the third parties' acts they have induced, and continue to induce, constitute infringement.
- 51. Defendants' infringement of the Asserted Claims of the '565 patent has caused and continues to cause damages and irreparable harm to US Synthetic.

#### **DEMAND FOR JURY TRIAL**

Pursuant to Fed. R. Civ. P. 38, US Synthetic respectfully demands a trial by jury on all issues properly triable before a jury in this action.

## PRAYER FOR RELIEF

WHEREFORE, US Synthetic requests that this Court enter judgment in its favor on each and every claim for relief set forth above and award it relief including, but not limited to, the following:

- A. The entry of judgement under 35 U.S.C. § 271(a), (b) and/or (c) that Defendants' making, using, offering to sell, selling or importing Defendants' Accused Products prior to the expiration of the patents-in-suit will infringe, actively induce infringement, and/or contribute to the infringement of the patents-in-suit under 35 U.S.C. § 271(a), (b) and/or (c);
- B. The entry of a preliminary and/or permanent injunction, enjoining Defendants and all persons acting in concert with Defendants from commercially manufacturing, using, offering for sale, or selling Defendants' Accused Products within the United States, or importing Defendants' Accused Products into the United States, until the expiration of the patents-in-suit, in accordance with 35 U.S.C. § 283;
- C. The issuance of an order that Defendants deliver up for destruction all infringing products in their possession;
- D. An award to US Synthetic of damages adequate to compensate for Defendants' infringement pursuant to 35 U.S.C. § 284, in an amount to be determined at trial, as a result of Defendants' infringement of the patents-in-suit;
- E. An order determining that, with respect to Defendants, this case is exceptional and an award of attorney fees, costs and expenses incurred in bringing and prosecuting this case, pursuant to 35 U.S.C. § 285;
  - F. An award to U.S. Synthetic of its costs in this action; and
  - G. Any other relief as the Court may deem just and appropriate.

Dated: November 20, 2020 Respectfully submitted,

#### /s/ Miranda Jones

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